

ABSTRACT OF THE DISCLOSURE

A method is described for forming a trench in a semiconductor substrate, which has a silicon layer, an oxide layer overlying the silicon layer, and a nitride layer overlying the oxide layer. The method includes etching the nitride layer to a nitride end point using a nitride etching chemistry, which includes a fluorinated hydrocarbon, oxygen, and an inert gas selected from the group consisting of neon, argon, krypton, xenon, and combinations thereof. Methods of making semiconductor devices, methods of reducing defects in semiconductor devices, and silicon wafers having trenches and isolation regions formed by the above-mentioned methods for forming a trench are also described.